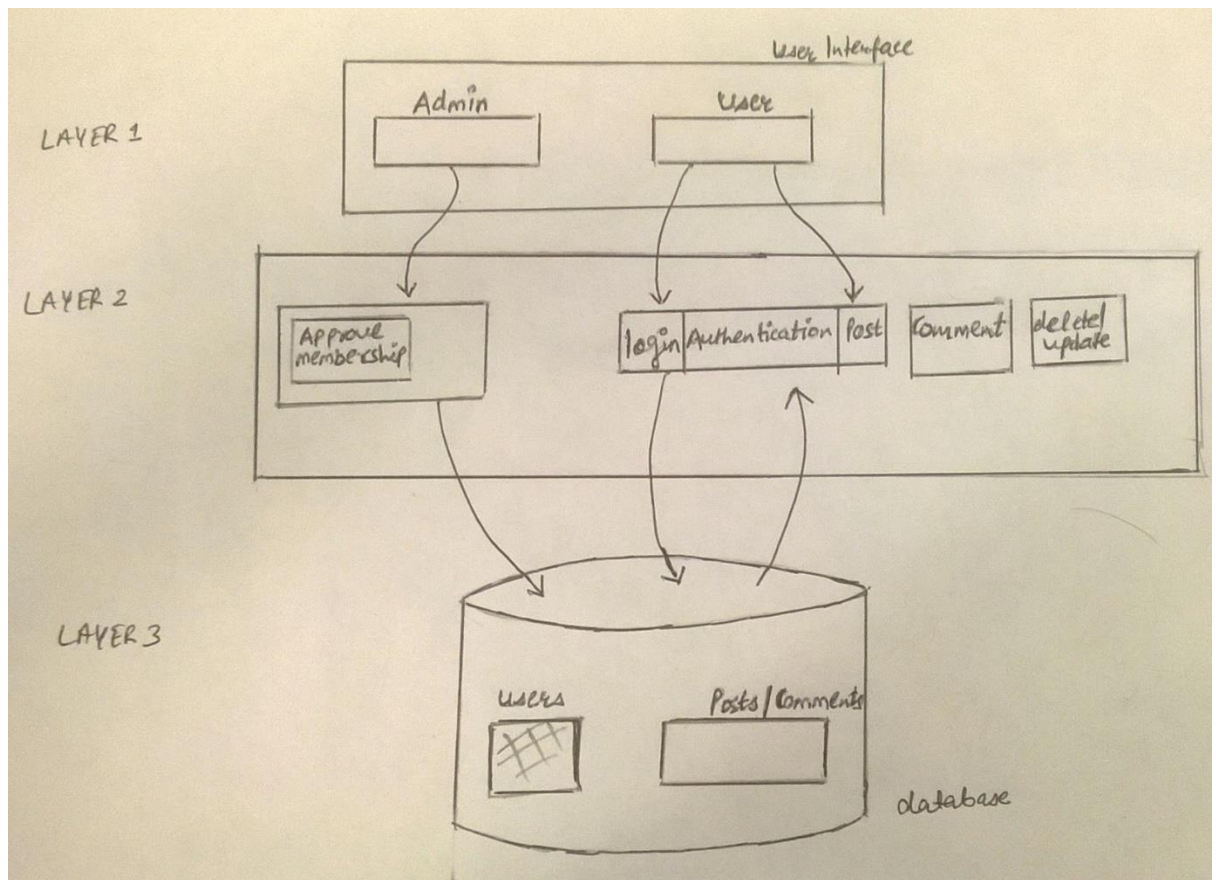Q2)

a) Software architecture of the application:

Justification of above design:
Layer1 represents the user interface of the user and the admin. Layer2 represents the various operation of user such as login, authentication, post, comment, delete and update. Admin can approve the memberships of the users. Database layer represents the database that completely stores the data and information of all the user and their related information.

b) Testing approach for the above application can be performed at three different layers mentioned below:

➢ **Layer 1:**
   o User login and authentication should be tested first.
   o This can be done by using selenium at admin/user functionality level.

➢ **Layer 2:**
   o Test basic operations such as post, delete, update, comment.
   o Testing at this layer can be done by using some unit testing framework such as phpunit for its implementation.

> **Layer 3:**
> - Test database functionality and data integrity at database level.

Following tools can be used in testing this application

➔ **Selenium**: for user interface testing and functional testing
➔ **Phpunit**: for testing php code at server level.
➔ **DBunit**: for testing of database operations at database level.